DESCRIPTION OF THE TANYDERID LARVA *PROTANYDERUS MARGARITA* ALEXANDER FROM COLORADO[1]

By Allen W. Knight[2]

While conducting an aquatic invertebrate investigation in Colorado, the author encountered the larvae of a Tanyderid Diptera. These larvae are almost certainly those of the heretofore undescribed *Protanyderus margarita* Alexander. The adult of this rare species is known to occur from Colorado northward and westward into British Columbia, Oregon and Utah (Alexander, personal communication, 1962). The adult of *Protanyderus margarita* Alexander was described by C. P. Alexander from Zion National Park, Utah, and named for his wife, Mabel Marguerite Alexander. It has also been reported from British Columbia, Oregon (N.E., Great Basin area), Idaho, and Colorado (Alexander, personal communication, 1962). The last is the most easterly known record for the species and genus in North America (Sunset, Boulder County, 22 July 1915, T. D. A. Cockerell).

A photograph of the larval Tanyderid was sent to Dr. Alexander for his inspection. He stated that "it is virtually certain from its habitat that the species concerned is *Protanyderus margarita* Alexander."

The only Tanyderidae whose early stages have been described are *Protoplasa fitchii* (Osten-Sacken) in Eastern North America, *Peringueyomyina barnardi* Alexander in South America and *Protanyderus vipio* (Osten-Sacken) discovered in California by Dr. Joseph H. Rose (Alexander, personal communication, 1962) who is describing it.

The author secured a total of three Tanyderid larvae. All were encountered on July 11, 1961, in Blue Creek, Gunnison County, Colorado. The collection was made in a meadow through which Blue Creek flows, approximately one mile above the point where Blue Creek passes under a bridge on High 50. Blue Creek, in this area, is a shallow stream with a depth of 1 to 2 feet, and has a rubble to stony bottom. The immediate shore where the larvae were found has overhanging banks of grass and willow. The stream at this point is mainly riffles. The larvae were found a foot

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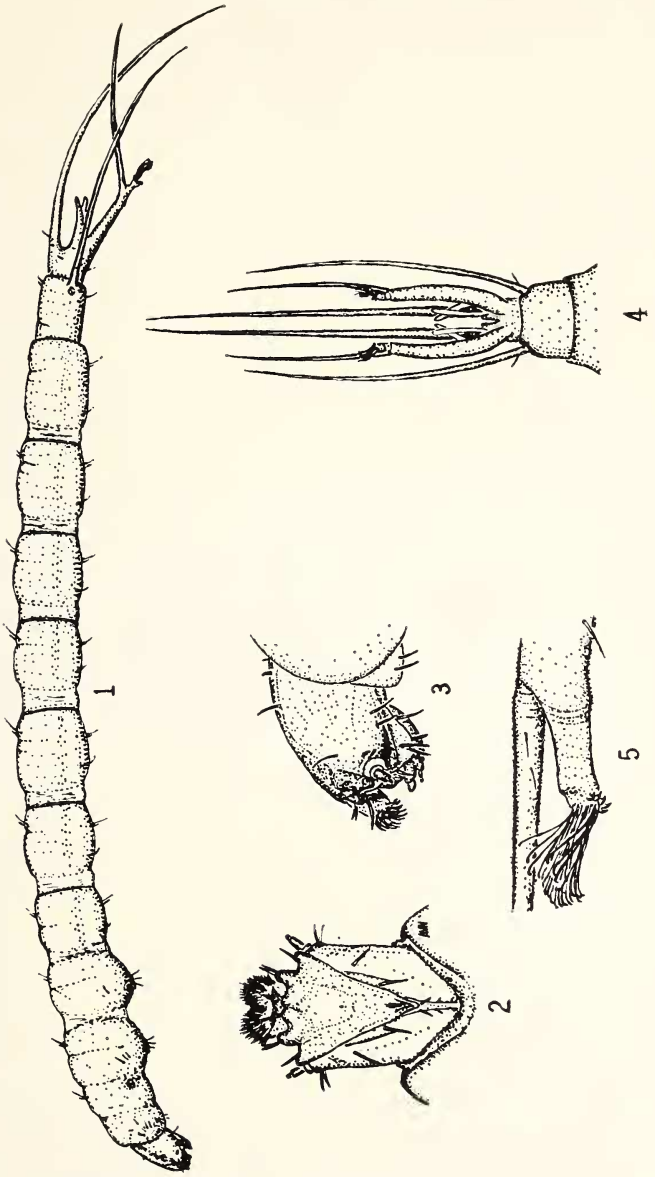
or two from the southern bank in shallow water where the rocky bottom contained considerable sand between and under the stones.

I would like to thank Dr. Charles P. Alexander for his determination of the larvae, as we as his generous supply of data and information pertaining to the Tanyderidae, and Alan V. Nebeker for preparing the excellent figures. Grateful acknowledgment is also made to George F. Edmunds, Jr., Louis T. Nielsen and Arden R. Gaufin, for their aid during the preparation of this paper.

Description of the Larva

The body of the larva is quite midge-like in appearance and is about 12 mm long, exclusive of filaments (total length including filaments, 15–17 mm). The body is yellowish-brown in color and appears nearly white in live specimens. The sclerotized head capsule is of a very complex nature and diverges downward from the main body axis at about a 45° angle. The antennae are three-segmented with the basal segment being the larger and the two distal segments each progressively smaller. Two large lobes of epipharyngeal brushes are borne on the labrum. Ventral to the epipharyngeal brushes are the mandibles, maxillary palpae, maxillary mala and labial sclerite, each in a ventro-posterior position to the preceding structure. The eyes are located just posterior to the base of the antennae. The thoracic segments are swollen and slightly larger than the abdominal segments. The prothoracic segment exhibits a dark brown spiracle on the posterior edge of the lateral margins. The prothorax is divided into an anterior and posterior subdivision. The mesothorax and metathoracic segments also possess this subdivision but it is less defined and restricted, for the most part, to the dorsal portion of the segments. The abdomen is divided into nine distinct abdominal segments that become progressively longer with a gradual reduction in diameter.

The eighth abdominal segment possesses a lateral spiracle near the posterior edge of the segment and just anterior to the origin of a filament that extends posteriorly for about 3 mm. The ninth abdominal segment is produced into a dorsal and ventral pair of posterior projections. The dorsal pair of filments, which are about 4 mm long, are slightly longer than any of the other terminal filaments. The ventral projections are produced into stout "pseudopods" or posterior leg-like structures, about 2 mm long, which project posterolaterally from the ninth segment. A dorsal filament arises from the pseudopods and extends posteordorsally for about 1.5 mm. Each of the pseudopods terminates in a fan-like arrange-



Larva of *Protanyderus margarita* Alex. Fig. 1, Lateral view of entire larva. Fig. 2, Dorsal view of head. Fig. 3, Lateral view of head and prothorax. Fig. 4, Caudal end, ventral aspect of larva. Fig. 5, Lateral view of enlargement of "pseudopod" and crotchets.

ment of 23 contractile crotchet-like structures. Just anterior and ventral to the crotchet-like structures are seven large ventrally curved hooks.

At the base of each pseudopod and slightly posterodorsal is located a pair of gills about ¾ to 1 mm long.

Chaetotaxy.—The dorsal aspect of the head has a pair of setae located on the anterodorsal surface of each torma with a pair of setae dorsal and lateral to each epipharyngeal brush at the anterior of the postclypeus. A pair of setae are located slightly posterior, and a single seta anterior, to the antennae. The frontal sutures are bordered by two pairs of setae with three additional pairs along the coronal suture. A pair of setae project from the paragula just lateral and anterior to another pair located somewhat more ventrally on the paragula. A single seta extends anteriorly from each paragula.

The prothorax has a pair of ventral setae just posterior to the basal labial plate as well as a group of four ambulatory setae on the prothorax, mesothorax and metathorax. The setae behind the metathorax consist of a pair of lateral ventral setae on each segment. Another group of three setae is located on the anterolateral aspect of the prothorax, as well as a single seta just anterior to the spiracle. The remainder of the segments exhibits a prominent single anterior and two less prominent posterolateral setae per segment. A group of four weak setae is distributed across the dorsal aspect of each segment. The eighth abdominal segment possesses a group of three lateral setae just anterior to the filament. A dorsal seta occurs on the dorsal aspect of the lateral filament, shortly beyond its origin.

The morphological terminology utilized in the present description was adapted from descriptions of *Protoplasa fitchii,* set forth by Alexander (1930) and Crampton (1930).

Collection Data.—Larvae, Blue Creek, Gunnison County, Colorado; 11 July 1961 (A. W. Knight), deposited in collection of the University of Utah, Salt Lake City, Utah.

Literature Cited

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